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Case AA422

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Prosecution Of Application of :
 Jian-Zhong Yang et al. :
 Serial No. 10/070,197 : Group Art Unit 1626
 Filed June 7, 2002 : Examiner Ebenezer O. Sackey
 Title Hair Styling Composition Comprising A Polypropylene Glycol

DECLARATION OF JIAN-ZHONG YANG
UNDER 37 CFR 1.132

I, Jian-Zhong Yang, hereby declare and say the following:

1. I received a Ph.D. degree from Osaka City University. I have been employed by Procter & Gamble, Far East, Inc. and have worked in Beauty Care Product Development since 1994. My current title is Principal Scientist.
2. I am the inventor on the above-entitled application and I am familiar with the June 4, 2003 Final Office Action in that application. The invention in the above-entitled application is directed to a hair care composition comprising:

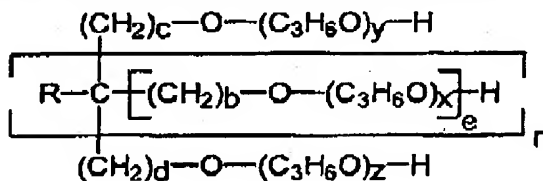
- A. a polypropylene glycol selected from the group consisting of a single-polypropylene glycol-chain segment polymer, a multi-polypropylene glycol-chain segment polymer, and mixtures thereof,

wherein the single-polypropylene glycol-chain segment polymer is of the formula:



wherein a is a value from about 20 to about 100, and

wherein the multi-polypropylene glycol-chain segment polymer is of the formula:



(Formula III),

wherein n is a value from about 0 to about 10, wherein each R is independently selected from the group consisting of H, and C₁-C₃₀ alkyl, wherein

each b is independently a value from about 0 to about 2, wherein c and d are independently a value from about 0 to about 2, wherein $b + c + d$ is at least about 2, wherein each e is independently a value of 0 or 1, wherein each x , y , and z is independently a value of from about 7 to about 100, and wherein $x + y + z$ is greater than about 20; and

B. a gel matrix comprising a cationic surfactant containing one long chain alkyl group and a tertiary or quaternary amine group, a solid fatty compound, and water.

3. I am familiar and knowledgeable about tests which were performed to compare conditioning benefit on wet hair for compositions comprising mono-alkyl cationic surfactants compared to conditioning benefit on wet hair for a composition containing di-long alkyl cationic surfactants. A wet hair sensory test assesses slippery or smooth wet hair feel versus a common control in a pair comparison manner (1-5 scale). The results of this test are shown in Table 1.

Table 1

Composition	Delta on Slippery/Smooth Wet Hair Sensory Feel*
3.38 wt.% Behentrimonium chloride ¹⁾ / 0 wt.% Distearyltrimonium chloride ²⁾ (10:0 weight ratio)	0.67
3.04 wt.% Behentrimonium chloride ¹⁾ / 0.338 wt.% Distearyltrimonium chloride ²⁾ (9:1 weight ratio)	0.50
2.70 wt.% Behentrimonium chloride ¹⁾ / 0.675 wt.% Distearyltrimonium chloride ²⁾ (8:2 weight ratio)	0
2.37 wt.% Behentrimonium chloride ¹⁾ / 1.01 wt.% Distearyltrimonium chloride ²⁾ (7:3 weight ratio)	-0.33
2.03 wt.% Behentrimonium chloride ¹⁾ / 1.35 wt.% Distearyltrimonium chloride ²⁾ at (6:4 weight ratio)	**
1.69 wt.% Behentrimonium chloride ¹⁾ / 1.69 wt.% Distearyltrimonium chloride ²⁾ at (5:5 weight ratio)	**

1) Varisoft BT85 available from Witco Chemicals

2) Varisoft TA100 available from Witco Chemicals

* A difference in hair sensory feel of 0.50 results in a statistical difference.

** Could not obtain homogenously emulsified mixture of the composition.

The data set forth in Table 1 demonstrates that the level of slippery wet hair feel decreases with increasing distearyltrimonium chloride in the combination of behentrimonium chloride and distearyltrimonium chloride systems. Furthermore, homogenous mixture could not be obtained once the weight ratio of behentrimonium chloride over distearyltrimonium chloride reaches 6:4 and beyond. This is because that di-long alkyl cationic surfactants are too hydrophobic to function as an emulsifier effectively.

4. I am also familiar and knowledgeable about tests which were performed to compare flyaway and bulk hair areas measured by an Image Analysis protocol for compositions comprising propylene glycols at different incorporation levels. An Image Analysis measurement measures indexes of flyaway and bulk hair areas compared to flyaway and bulk hair areas of an untreated hair. Indexes of flyaway and bulk hair areas measure hair flyaway and bulk volume performance between the values of 1.00 and 0.00. An untreated hair results in an index of 1.00. The results of this test are shown in Table 2.

Table 2

Composition*	Index of flyaway area**	Index of bulk hair area**
0 wt.% PPG-34 ¹⁾	1.00	1.00
0.25 wt.% PPG-34 ¹⁾	1.00	0.95
0.50 wt.% PPG-34 ¹⁾	0.79	0.84
0.75 wt.% PPG-34 ¹⁾	0.85	0.77
1.00 wt.% PPG-34 ¹⁾	0.64	0.80

1) New Pol PP-2000 available from Sanyo Kasei

* Incorporated in a gel matrix comprising 2.0 wt.% of behentrimonium chloride, 2.5 wt.% of cetyl alcohol, and 4.5 wt.% of stearyl alcohol.

** A difference in hair sensory feel of 0.05 results in a statistical difference.

The data set forth in Table 2 demonstrates that the level of hair flyaway and bulk volume reduction increase with increasing PPG-34 weight percentage. Meaning benefit can be obtained only at a PPG-34 level of greater than 0.25 wt.%.

5. I further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-captioned patent application or any patent granted thereon.

J. Z. Yang
Jian-Zhong Yang
June 30, 2004
Date

18 USC 1001 Statements or Entries Generally

Except as otherwise provided in this section, whoever, in any matter within the jurisdiction of the executive, legislative, or judicial branch of the Government of the United States, knowingly and willfully (1) falsifies, conceals, or covers up by any trick, scheme, or device a material fact; (2) makes any materially false, fictitious, or fraudulent statement or representation; or (3) makes or uses any false writing or document knowing the same to contain any materially false, fictitious, or fraudulent statement or entry; shall be fined under this title or imprisoned not more than five years, or both.